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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,418	12/14/2000	James R. Huston	068363.0201	8804

23640 7590 10/21/2003

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EXAMINER

KUMAR, SRILAKSHMI K

ART UNIT	PAPER NUMBER
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2675

19

DATE MAILED: 10/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,418

Applicant(s)

HUSTON ET AL.

Examiner

Srilakshmi K. Kumar

Art Unit

2675

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 2675

DETAILED ACTION

Response to Amendment

The following office action is in response to Amendment A, filed July 14, 2003. Claims 1-10, 12-21 and 23 are pending. Claims 11 and 22 have been cancelled. Claims 1, 12 and 23 have been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 12-18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al (US 5,977,940) further in view of Nakao (US 6,437,716).

As to independent claims 1 and 12, Akiyama et al disclose a display device and a method for driving a display comprising; storing a voltage value in an analog memory associated with each pixel of a display, wherein each of the pixels has a comparator associated therewith (col. 9, lines 37-46, 60-67); applying a reference voltage and the voltage values stored in the analog memory to the comparators of the pixels (col. 10, lines 1-22, 36-65); comparing the voltage values with the reference voltage for determining which of the voltage values matches the reference voltage (col. 10, lines 1-22, 36-65); changing the state of the pixels whose voltage values match the reference voltage (col. 10, lines 1-22, 36-65). Akiyama et al do not disclose wherein the voltage value in at least a portion of the analog memories is adjusted for providing

Art Unit: 2675

gamma correction. Nakao discloses in col. 7, lines 31-53, wherein the gamma correction is provided. It would have been obvious to one of ordinary skill in the art to incorporate the gamma correction of Nakao into that of Akiyama et al as the gamma correction would provide a more natural gray scale display (col. 1, lines 12-20).

As to independent claim 23, limitations of claims 1 and 12, and further comprising, wherein each of the pixels includes a level shifter for changing a lower voltage to a higher voltage for output to a pixel electrode. Akiyama et al do not disclose a level shifter. Nakao disclose a level shifter in col. 2, line 64-col. 3, line 12. It would have been obvious to one of ordinary skill in the art to incorporate the level shifter of Nakao into that of Akiyama et al as the level shifter converts the data into an analog voltage, which is then outputted as the gray scale display voltage from an LCD drive voltage output terminal to the source signal lines of the LCD elements by an output circuit. Thus, with the incorporation of the level shifter, the number of levels of the reference voltages becomes the number of levels of gray that can be provided for display.

As to dependent claims 2 and 13, limitations of claims 1 and 12, and further comprising, wherein the display is an active matrix panel display (col. 9, lines 28-37).

As to dependent claims 3 and 14, limitations of claims 1 and 12, and further comprising, the step of applying illumination (col. 9, lines 28-37, col. 10, lines 1-22, 36-65).

As to dependent claims 4 and 15, limitations of claim 3 and 14, and further comprising, wherein the reference voltage is changed as a function of time for causing each pixel to change state at a desired time (col. 13, lines 14-41).

Art Unit: 2675

As to dependent claims 5 and 16, limitations of claim 1 and 12, and further comprising, wherein the states of groups of the pixels are changed, and further comprising the step of changing the states of the groups of the pixels in multiple phased cycles (col. 13, line 14-col. 14, line 23).

As to dependent claims 6 and 17, limitations of claim 5 and 16, and further comprising, wherein the groups are interspersed on the display to avoid flicker at low update rates (col. 13, line 14-col. 14, line 23).

As to dependent claims 7 and 18, limitations of claims 1 and 12, and further comprising, wherein the pixel provides illumination (col. 9, lines 28-37).

3. Claims 8-10 and 19-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al in view of Nakao (US 6,437,716) as applied to claims 1 and 12 above, and further in view of Huang et al (US 5,965,907).

As to dependent claims 8 and 19, limitations of claims 7 and 18, and further comprising, wherein the display is an organic light emitting diode display (OLED). Akiyama et al does not disclose where the display is an organic light emitting diode display. Huang et al disclose a OLED device within a liquid crystal display as shown in the abstract. It would have been obvious to one of ordinary skill in the art to incorporate the OLED device of Huang et al into that of Akiyama as the addition of the OLEDs for use as LCD illumination device allows for field sequential color and is a more reliable light source as shown in col. 2, lines 9-41.

As to dependent claim 9 and 20, limitations of claims 8 and 19, see limitations of claims 5 and 16.

Art Unit: 2675

As to dependent claims 10 and 21, limitations of claim 9 and 20, see limitations of claims 6 and 17.

Response to Arguments

4. Applicant's arguments with respect to claims 1-10, 12-21 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Srilakshmi K. Kumar** whose telephone number is **(703) 306 5575**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703 305 47000377.

Art Unit: 2675

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 703 306 5575.


The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703 305 9720. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9314 for regular communications and 703 308 9051 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305 4700.

Srilakshmi K. Kumar
Examiner
Art Unit 2675

SKK
October 4, 2003



STEVEN SARAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600